PATENT
<u>CASE NO. MP0974 (13036/15)</u>

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:) William Randolph Schmidt) Serial No.: 10/630,419) Filed: July 30, 2003) For: PRINTER FORMATTER) WITH PRINT SERVER)	Group Art Unit: 2625 Confirmation No.: 7838 Examiner: Edward Coles

APPEAL BRIEF

Mail Stop Appeal Brief-Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

This Appeal is in response to the Final Office Action mailed on March 26, 2008.

A Notice of Appeal was filed on August 14, 2008. This Appeal Brief is being filed within two-months of the filing of the Notice of Appeal, as required by 37 CFR § 41.37(a)(1).

I. REAL PARTY IN INTEREST

It is believed that Avago Technologies Imaging IP (Singapore) Pte. Ltd. is the real party of interest in this Appeal pursuant to the following: 1) a recorded assignment of the above-identified application to Agilent Technologies, Inc., by the inventor of record; 2) a recorded assignment of the above-identified application from Agilent Technologies, Inc., to Avago Technologies General IP (Singapore) Pte. Ltd.; and 3) a recorded assignment of the above-identified application from Avago Technologies General IP (Singapore) Pte. Ltd. to Avago Technologies Imaging IP (Singapore) Pte. Ltd.

II. RELATED APPEALS AND INTERFERENCES

The undersigned, John R. Lagowski, is not aware of any other appeals, interferences or other judicial proceedings that may be related to, would directly affect or be directly affected by or have a bearing on the Board's decision in the pending Appeal.

III. STATUS OF CLAIMS

The status of the claims is as follows:

Claims 1-20 have been canceled.

Claims 21-35 and 53-61 have been withdrawn.

Claims 36 and 40-52 are finally rejected under 35 U.S.C. § 102(e) as being unpatentable over U.S. Patent No. 7,130,069 to Honma.

Claim 37 is finally rejected under 35 U.S.C. § 103(a) as being unpatentable over Honma in view of U.S. Patent No. 7,069,341 to Leclair et al.

Claims 38 and 39 are finally rejected under 35 U.S.C. § 103(a) as being unpatentable over Honma in view of Leclair et al. in further view of U.S. Patent No. 6,522,420 to Chadez et al.

All of the 35 U.S.C. § 102(e) and § 103(a) rejections listed above are the subject of this Appeal.

IV.   STATUS OF AMENDMENTS

The Final Office Action was mailed on March 26, 2008. In an After-Final Amendment filed on June 3, 2008, claim 36 was amended to include the limitations of claim 37. Claim 37 was canceled. Claim 38 was amended to depend on claim 36 instead of on claim 37. These amendments were entered, as stated in the Advisory Action of June 19, 2008.

Other than the Notice of Appeal and this Appeal Brief, no papers have been filed by the Applicant since the filing of the After-Final Amendment.

V.   SUMMARY OF CLAIMED SUBJECT MATTER

An understanding of the subject matter of independent claim 36 can be made upon a review of the embodiments of the invention as follows.

Printer formatters are embedded in printers, such as inkjet and laser printers, to convert print jobs from a format received from a computer system to a format usable by a print engine within the printer (¶ 19, Fig. 2). Claim 36, the only independent claim

under appeal, is directed to a printer formatter (202, Fig. 2) that has a processor (222, Fig. 2), a system input/output (I/O) (224, Fig. 2), a formatter controller (228, Fig. 2), and a print server (230, Fig. 2), all located on a common substrate (¶ 16, Fig. 2).

The processor of the printer formatter performs print functions associated with print jobs (¶ 16). The print functions may be associated with one or more of the system I/O, the formatter controller, and/or the print server (¶ 16). For example, if the system I/O, the formatter controller, and/or the print server includes software components, the processor executes instructions from the software components to perform respective print functions (¶ 16).

The system I/O communicates signals between the computer system and the processor, i.e., receives input signals and provides output signals (¶ 17). As stated above, the printer formatter controller performs formatting functions associated with print jobs (¶ 19). The print server performs functions such as storing print jobs in a print queue, periodically notifying the computer system of the status of print jobs, and removing print jobs from the print queue (¶ 18).

VI.   GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

There are two grounds of rejection presented for review: (1) the rejection of claim 36 (as amended in the After-Final Amendment) under 35 U.S.C. § 103(a) as unpatentable over Honma in view of Leclair et al., and (2) the rejection of claim 38 under 35 U.S.C. § 103(a) as unpatentable over the combination of Honma, Leclair et al., and Chadez et al.

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VII.   ARGUMENTS

By way of background, print data formatting functions are independent of print queue management functions. A printer formatter includes circuitry to execute print data formatting functions. A print server includes circuitry to manage print queues. The components that control the print data formatting functions are manufactured separate from the components that manage print queues. Accordingly, printer formatters and print servers are independent, separate components. In many computer networks, the printer and the print server are separate machines. Even when housed together, printer formatter components are separate from print server components. The present invention is directed to an advance in the printer industry. Specifically, significant manufacturing and cost advantages are realized by combining printer formatter and print server components on the same substrate. Claim 36 provides:

> A printer formatter comprising:
>
> a processor to perform at least a first print function associated with a print job;
>
> a system input/output (I/O) associated with the processor to receive an input signal and provide an output signal;
>
> a formatter controller to perform at least a first formatting function associated with the print job; and
>
> a print server, in communication with the processor, to manage a print queue; and
>
> a substrate having the processor, the system I/O, the formatter controller, and the print server located thereon.

Claim 38 further defines a combination printer formatter/print server:

> The printer formatter of claim 36 wherein the printer formatter comprises a single microchip that includes the processor, the system I/O, the formatter controller, and the print server.

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Claims 36 and 38 stand rejected over, respectively, Honma in view of Leclair et al. and Honma in view of Leclair et al., in further view of Chadez et al. Applicant asserts that claims 36 and 38 and their dependent claims are allowable for the following reasons.

In the Final Office Action, Honma is cited as disclosing a printer formatter having all but one element of claim 36: a print server being located on the common substrate. The Final Office Action states: "Honma does not disclose expressly wherein the print server is located [on the substrate]" (Final Office Action, pg. 3, ¶ 2). For a print server on the common substrate, the Final Office Action cites Leclair et al., col. 9, lns. 39-50, and states that Honma and Leclair et al. are combinable because they are from the same field of endeavor. As explained below, Applicant's argument with respect to claim 36 is that one skilled in the art of Honma (an image forming system having dispersed systems and components) would not look to the art of Leclair (exchanging data over a network) for modifying a printer chip, and that even if Honma and Leclair et al. are combined, Leclair et al. discloses only that the printer formatter and print server may be housed together.

Claim 36 recites that the printer formatter includes a substrate having a processor, system I/O, formatter controller, and print server all located thereon. The Final Office Action cites Leclair col. 9, lns. 39-50 as disclosing a "print server located thereon." Applicant appeals the finding that Leclair et al. discloses a print server located on the same substrate as the printer formatter.

Leclair discloses at col. 9, lns. 39-50:

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Initiator 600 then submits a request to server 610, which may be, for example, server 310 of FIG. 3 (step 510). **If the output device has an embedded server, initiator 600 may submit the request directly to I/O device 350.** Initiator agent 625 of initiator 600 formulates the request as an HTTP "POST" command. The POST command contains a URL of the location of the data to be outputted. The body of the request contains the page/request. The page/request may be encoded using MIME, in which case the lines following the command might include ContentType and authentication headers, to prove the initiator has permission to perform the requested operation. The POST request may also include information about the requirements such as the destination output device, output format type, and other special requirements. Alternatively, a user may invoke a browser or custom HTTP client to submit the same information as the POST command to the server. (bold added)

Thus, Leclair et al. discloses only that an output device may have an embedded server. Leclair et al. does not disclose that the embedded server is located on the same substrate as a processor that performs a print function, a system I/O, and a formatter controller. Applicant respectfully requests that the Board find that disclosing a printer having *an embedded server* does not equate to a motivation to combine a print server and a formatter controller on *the same substrate*. Assembling a printer to include a print server component is very different from modifying the structure and manufacture of a printer's semi-conductor components. For at least this reason, claim 36 and its dependent claims are believed allowable over the cited references.

Applicant also appeals the finding that Honma and Leclair et al. are combinable. Honma is directed to an image-formatting apparatus. Leclair et al. relates to transmitting data to and receiving data from an output or input device over a network. Leclair et al. does not pertain to the field of the structure or manufacture of printer formatters or print servers. Rather, Leclair et al. pertains to controlling devices over the

Internet and discloses that the printer may have an embedded server to demonstrate that the request signal may be sent across the network to a printer having a server, instead of to a server connected to a printer. That example is not associated with the structure or function of a printer formatter. Also, there is no motivation or suggestion, expressed or implied, in Leclair et al. for locating a print server on a substrate having a processor, system I/O, and a formatter controller. Leclair et al. discloses only that a printer may have an embedded server.

Thus, for at least the reasons discussed above, Claim 36 is believed novel and non-obvious over Leclair et al. and Honma. Claims 38-52 depend from Claim 36 and are believed allowable for at least the same reasons.

Regarding claim 38, the Final Office Action states that Chadez et al. discloses a printer formatter having a single microchip that includes the processor, the system I/O, the formatter controller, and the print server. As explained below, Chadez et al. is not combinable with Honma and Leclair et al., and Chadez et al. does not disclose a single microchip having the components of claim 38, as stated in the Final Office Action.

Claim 38 recites that the printer formatter of claim 36 comprises a single microchip. The Final Office Action states that Honma and Leclair et al. do not disclose firmware for specifically having a single microchip that includes the processor, the system I/O, the formatter controller, and the print server. The Final Office Action cites Chadez et al., col. 2, lns. 45-51 as disclosing printer firmware that includes a single microchip having those components. Chadez et al. discloses at col. 2, lns. 45-51:

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The controller 26 controls operation of the printing mechanism 34 and the print engine 36. The controller's CPU 28 is preferably implemented as an Application Specific Integrated Circuit (ASIC) that is designed to support serial and parallel I/O functionality with the host, compress and decompress the raster data, communicate with the print engine, and send the host data to the engine. (bold added)

In the cited paragraph, Chadez et al. discloses that a controller that controls the operation of a printing mechanism is implemented by the same ASIC that has a controller for a print engine. These are inner-printer devices responsible for printing ink or toner on a sheet. Chadez et al. does not disclose or suggest that the ASIC includes a print server, or any other device that is not associated with the actual printing. Thus, Chadez et al. does not fill the gap between claim 38 and the Honma/Leclair et al. combination. Applicant respectfully requests that the Board find that disclosing an ASIC having a controller for the printer mechanics and the print engine does not equate to a motivation to combine a print server (a non-printer device) and printer formatter (a printer device) on the same substrate or as a single ASIC. For at least this reason, claim 38 and its dependent claim are believed allowable over the cited references.

Applicant also appeals the assertion that Honma, Leclair et al., and Chadez et al. are combinable. These references are directed to different fields of art. Honma discloses an image forming system having dispersed systems and components (see, for example, Honma, Figs. 1-4). Honma does not discuss or even pertain to the structure of printer formatter chips or print server chips. As discussed above, Leclair et al. pertains to network communication, such as the Internet, not to the structure of printer formatter chips. Chadez et al. relates to neither Honma nor Leclair et al. Chadez et al. relates to firmware for interleaving printing operations with non-printing *printer*

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operations such as compressing raster data (i.e., image bitmap data) for a subsequent print job. Chadez et al. does not pertain to performing *non*-print engine or *non*-print formatting functions, and thus does not suggest combining print server operations (or any other operation that does not pertain to printing) and printer functions in an ASIC. In other words, Chadez et al. does not disclose integrating on a single chip processes that are performed within a printer with processes that are not performed within a printer. Specifically, Chadez et al. does not pertain to managing print data traffic among two or more printers.

The arrival of print data traffic is unpredictable from the perspective of the processor of Chadez et al. because the arrival of print jobs is independent of printer functions. As discussed above, Chadez et al. discloses that *inner*-printer, non-printing functions such as raster data compression can be performed during the non-printing phase of the printer. The Chadez et al. processor thus has control over when it can turn to the non-printing functions, because those functions are not independent of the printer. If one skilled in the art of printers (i.e., Honma) were to look to Chadez et al., they would not find the teaching of the present application – integrating into the printer chip a function that is not related to the actual printing process. Thus, one skilled in the art of printers would not look to Chadez et al. for the implementation of non-print functions in the printer, because that is not what Chadez et al. teaches. Given the absence of this teaching, the combination is based on improper hindsight reconstruction, and does not provide the claimed invention.

The suggestions/motivations that are stated at page 10 of the Final Office Action for combining the references are potential advantages of the presently claimed

invention. Reciting advantages or potential advantages of a claimed invention and then stating that those advantages provide the motivation to combine references, without further explanation, reasoning, or further motivation, is improper hindsight reconstruction. In addition, the statement in the Final Office Action that interleaving printing operations with non-printing operations takes advantage of the non-printing phase to compress raster data and other general operations is not a suggestion or motivation to modify the ASIC (of Chadez et al.) to include network or data trafficking functions performed by components not associated with the print cycle of the printer. As stated above, print queue management is independent of the print cycle. Chadez et al. pertains specifically to combining previously existing inner-printer print cycle functions on the same ASIC. Chadez et al. does not pertain to incorporating into the ASIC functions that are (a) external to print job processing functions, and (b) not under the control of the processor. Thus, the combination of references is merely a hindsight reconstruction of bits-and-pieces of art from different fields to recite the elements of the claimed invention. Specifically, the references are not from similar fields and are not combinable as applied in the Final Office Action: Honma pertains to printer networks; Leclair et al pertains to controlling devices over the Internet, and Chadez et al. pertains to interleaving inner-printer functions. For at least these reasons, Applicants traverse the combination of Honma, Leclair, and Chadez et al. as improper hindsight reconstruction.

Thus, for at least the reasons discussed above, claim 38 is believed novel and non-obvious over Leclair et al., Honma, and Chadez et al. Claim 39 depends from claim 38 and is believed allowable for at least the same reasons.

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Accordingly, Applicant respectfully asserts that the rejections of the pending claims are based upon a clearly erroneous analysis of the subject matter of the cited references and improper hindsight reconstruction. Further, the cited references are from different fields and do not combine to produce a printer formatter that includes a print server on a common substrate or integrated by a single ASIC. Applicant requests that these errors be reviewed, the rejections withdrawn, and the claims allowed.

Respectfully submitted,

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VIII.   CLAIMS APPENDIX

36.   A printer formatter comprising:

a processor to perform at least a first print function associated with a print job;

a system input/output (I/O) associated with the processor to receive an input signal and provide an output signal;

a formatter controller to perform at least a first formatting function associated with the print job; and

a print server, in communication with the processor, to manage a print queue; and

a substrate having the processor, the system I/O, the formatter controller, and the print server located thereon.

38.   The printer formatter of claim 36 wherein the printer formatter comprises a single microchip that includes the processor, the system I/O, the formatter controller, and the print server.

39.   The printer formatter of claim 38 wherein the microchip is configured to function within a printer.

40.   The printer formatter of claim 36 wherein the system I/O is adapted to receive the print job.

41.   The printer formatter of claim 36 wherein the formatter controller is adapted to convert the print job from a first format to a second format.

42.   The printer formatter of claim 36 wherein the formatter controller is adapted to compress the print job.

43.   The printer formatter of claim 36 wherein the formatter controller is adapted to de-compress the print job.

44.   The printer formatter of claim 36 wherein the system I/O is adapted to generate an I/O interrupt in response to receiving the input signal, and the processor is adapted to perform an I/O function in response to receiving the I/O interrupt.

45.   The printer formatter of claim 44 wherein the I/O function includes receiving and storing the print job.

46.   The printer formatter of claim 44 wherein the I/O function includes providing an indication to the print server that the print job has been received.

47.   The printer formatter of claim 36 wherein the print server is adapted to generate a print server interrupt in response to detecting the print job, and the processor is adapted to perform a print server function in response to receiving the print server interrupt.

48.   The printer formatter of claim 36 wherein the processor is adapted to store the print job in the print queue.

49.   The printer formatter of claim 36 wherein the processor is adapted to provide a print job status notification.

50.   The printer formatter of claim 36 wherein the processor is adapted to provide a print job complete notification.

51.   The printer formatter of claim 36 wherein the processor is adapted to provide a print error notification.

52.   The printer formatter of claim 36 wherein the processor is adapted to remove the print job from the print queue in response to a cancel signal.

IX.   EVIDENCE APPENDIX

None.

X. RELATED PROCEEDINGS APPENDIX

None.